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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/042,929	10/18/2001	Janet Newman	10342-0010-999	4507

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EXAMINER

KAO, CHIH CHENG G

ART UNIT PAPER NUMBER

2882

DATE MAILED: 06/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Applicati n No.

10/042,929

Applicant(s)

NEWMAN ET AL.

Examin r

Chih-Cheng Glen Kao

Art Unit

2882

-- The MAILING DATE of this communication appears n the c ver sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 06 May 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1,3-6,8-14,16-18 and 20-51 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1,3-6,8-14,16-18 and 20-51 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 18 October 2001 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- 1) ☐ Certified copies of the priority documents have been received.
 - 2) ☐ Certified copies of the priority documents have been received in Application No. _____.
 - 3) ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|---|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input checked="" type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. <u>200405</u> . |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152) |
| Paper No(s)/Mail Date _____. | 6) <input type="checkbox"/> Other: _____. |

DETAILED ACTION

Information Disclosure Statement

1. The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

Drawings

2. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they include the following reference sign(s) not mentioned in the description: Figure 4, #400. A proposed drawing correction, corrected drawings, or amendment to the specification to add the reference sign(s) in the description, are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.

Claim Objections

3. Claims 1, 4, 10, 18, 20, 34, 35, 44, and 50 are objected to because of the following informalities, which appear to be minor errors including grammatical or lack of antecedent basis problems.

In the following format (location of objection; suggestion for correction), the following suggestions may obviate their respective objections: (claim 1, lines 4-5, "growth environments an X-ray system"; inserting a semi-colon after "environments"), (claim 1, line 7, "where said X-ray source"; replacing "where" with - -wherein- -), (claim 1, line 10, "where said X-ray detector"; replacing "where" with - -wherein- -), (claim 4, line 2, "where said imaging system"; replacing "where" with - -wherein- -), (claim 10, line 2, "said diffraction pattern"; replacing "pattern" with - -X-rays- -), (claim 18, line 2, "each another"; replacing "another" with - -other- -), (claim 20, line 2, "the initial step"; replacing "the" with - -an- -), (claim 34, line 3, "where the crystal"; replacing "where" with - -wherein- -), (claim 34, line 7, "where the X-ray source"; replacing "where" with - -wherein- -), (claim 34, line 10, "where said X-ray detector"; replacing "where" with - -wherein- -), (claim 34, last line, "the increased reproducibility"; deleting "the"), (claim 35, line 2, "where said imaging system"; replacing "where" with - -wherein- -), (claim 44, line 7, "where said X-ray source"; replacing "where" with - -wherein- -), (claim 44, line 10, "where said X-ray detector"; replacing "where" with - -wherein- -), (claim 44, lines 12-13, "where said imaging system"; replacing "where" with - -wherein- -), and (claim 50, line 2, "said diffraction pattern"; replacing "pattern" with - -X-rays- -).

For purposes of examination, the claims have been treated as such. Appropriate correction is required.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

4. Claims 1, 3, 4, 8, 9, 11-14, 16-18, 20-23, 25-30, 34, 35, 39, 41, 43-45, 48, 49, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann (US Patent 6507636) in view of Kushner et al. (US Patent 5221410).

5. Regarding claims 1, 11, 34, and 43, Lehmann discloses an apparatus and method comprising an x-ray system comprising an X-ray source (col. 5, lines 26-27) to irradiate crystalline material (Abstract), an X-ray detector to detect diffracted X-rays from crystalline material (col. 5, lines 34-37), and a positioner that positions the X-ray system relative to crystalline material for identifying and aligning (col. 5, lines 29-30).

However, Lehmann does not specifically disclose an X-ray system irradiating crystalline material grown in an array of in-situ crystal environments on one side and detecting from a second side for screening in this specific configuration.

Lehmann further discloses an X-ray system irradiating crystalline material grown in an array of in-situ crystal environments and detecting in the prior art (col. 1, line 62, to col. 2, line 17). Kushner et al. further discloses crystal environments with first and second sides (Fig. 6, #20 and 38) with inspection for screening (col. 7, lines 20-33).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus and method of Lehmann with the prior art X-ray system of irradiating crystalline material grown in crystal environments, since one would be

motivated to incorporate such a system in order to more easily inspect conventional and available multi-well plates for further experimentation (col. 1, lines 62-66) as implied from Lehmann.

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus and method of Lehmann with the crystal environments having two sides of Kushner et al., since one would be motivated to incorporate this to better provide a simple two component crystal forming device in which multiple experiments can be set-up and sealed in a minimum number of steps (col. 5, lines 30-33) and to better provide a viewable device with a minimum amount of handling (col. 5, lines 48-50) as shown by Kushner et al.

6. Regarding claims 4, 14, 16, 35, and 44, Lehmann further discloses an imaging system adjacent to the incubator for positioning and ascertaining the location of the crystalline material (col. 5, lines 38-40).

7. Regarding claims 3, 20, and 45, Lehmann further discloses the incubator as a sample holding tray to grow crystals therein (col. 1, lines 62-66).

8. Regarding claims 8 and 48, Lehmann further discloses a monochromatic beam of X-rays consisting of $\text{CuK}\alpha$ radiation (col. 5, line 41).

9. Regarding claims 9 and 49, Lehmann further discloses a focus size of 200 microns or less (col. 5, lines 27-29).

10. Regarding claims 17, 18, and 25, Lehmann would necessarily store the location of the crystalline material in order to send signals to tell the system where the crystal is for aligning (col. 5, lines 38-40).

11. Regarding claims 12, 26, and 51, Lehmann further discloses the crystalline material comprised of a group consisting of a crystalline powder, a microcrystal, a single crystal, and a plurality of single crystals (col. 1, lines 62-65).

12. Regarding claims 13 and 27, Lehmann further discloses a diffraction pattern comprising a group consisting of a powder diffraction pattern and a pattern of X-ray diffraction spots (col. 1, lines 62-66).

13. Regarding claim 21, Lehmann further discloses producing crystalline material by a method selected from a group consisting of a vapor diffusion method, a hanging-drop method, a sitting drop method, a dialysis method, a microbatch method, and a gel crystal growth method (col. 2, lines 26-30).

14. Regarding claims 22 and 29, Lehmann would necessarily perform the method in space to allow crystalline material grow (col. 1, lines 62-66).

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15. Regarding claims 23, 30, 39, and 41, Lehmann in view of Kushner et al. suggests a method and apparatus as recited above.

However, Lehmann does not disclose a protein crystal.

Kushner et al. teaches a protein crystal (col. 1, lines 9-21).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to further modify the method and apparatus of Lehmann with the protein crystal of Kushner et al., since one would be motivated to incorporate this for better designing, purifying, or manufacturing drugs (col. 1, lines 9-21) as shown by Kushner et al.

16. Regarding claim 28, Lehmann further discloses crystalline material re-positioned relative to the X-ray beam (col. 5, lines 29-30).

17. Claims 5, 6, 32, 36, 37, 46, and 47 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann in view of Kushner et al. as respectively applied to claims 1, 34, and 44 above, and further in view of Stettner et al. (US Patent 5629524).

18. Regarding claims 5, 6, 36, 46, and 47, Lehmann in view of Kushner et al. suggests an apparatus as recited above.

However, Lehmann does not disclose a phosphor imaging plate system.

Stettner et al. teaches a phosphor imaging plate system (col. 1, lines 20-27).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lehmann in view of Kushner et al. with the

phosphor imaging plate system of Stettner et al., since one would be motivated to incorporate this for better dynamic range (col. 1, lines 20-27) as shown by Stettner et al.

19. Regarding claims 32 and 37, Lehmann in view of Kushner et al. suggests an apparatus as recited above.

However, Lehmann does not disclose a CCD camera with a phosphor screen.

Stettner et al. teaches a CCD camera with a phosphor screen (col. 1, lines 45-60).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lehmann in view of Kushner et al. with the CCD camera of Stettner et al., since one would be motivated to incorporate this for better real time digitizing (col. 1, lines 39-60) as implied from Stettner et al.

20. Claims 10 and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann in view of Kushner et al. as respectively applied to claims 1 and 44 above, and further in view of Polichar et al. (US Patent 6205199).

Lehmann in view of Kushner et al. suggests an apparatus as recited above.

However, Lehmann does not disclose a transmitter to transmit data to a remote location.

Polichar et al. teaches a transmitter to transmit data to a remote location (col. 1, lines 45-50).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lehmann in view of Kushner et al. with the

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transmitter of Polichar et al., since one would be motivated to incorporate this to more easily have data analyzed by other experts (col. 1, lines 45-50) as shown by Polichar et al.

21. Claims 24, 31, 40, and 42 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann in view of Kushner et al. as respectively applied to claims 1, 11, 25, and 34 above, and further in view of Kim et al. (US Patent 6039804).

Lehmann in view of Kushner et al. suggests a method and apparatus as recited above.

However, Lehmann does not disclose a salt crystal.

Kim et al. teaches a salt crystal (col. 1, lines 43-45).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the method and apparatus of Lehmann in view of Kushner et al. with the salt crystal of Kim et al., since one would be motivated to incorporate this to better grow the crystal (col. 1, lines 40-57) as implied from Kim et al.

22. Claims 32, 33, 37, and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over Lehmann in view of Kushner et al. as respectively applied to claims 1 and 34 above, and further in view of Stanton et al. (US Patent 6448544).

Lehmann in view of Kushner et al. suggests an apparatus as recited above.

However, Lehmann does not disclose a CCD camera with a phosphor screen achieving at least 4 to 8 line-pairs per millimeter resolution.

Stanton et al. teaches a CCD camera (Abstract and col. 12, lines 54-67) with a phosphor screen (col. 20, lines 50-62) achieving at least 4 to 8 line-pairs per millimeter resolution (Title and col. 1, lines 30-34).

It would have been obvious, to one having ordinary skill in the art at the time the invention was made, to modify the apparatus of Lehmann in view of Kushner et al. with the camera of Stanton et al., since one would be motivated to incorporate this to have lower noise, higher spatial resolution, and higher dynamic range (col. 2, lines 1-12) as shown by Stanton et al.

Response to Arguments

23. Applicant's request for reconsideration of the finality of the rejection of the last Office action is persuasive. Therefore, the finality of that action is withdrawn.

24. Objections to the drawings and claims mailed 1/2/04 have been withdrawn in light of the arguments and amendments filed 5/6/04.

25. Applicant's arguments with respect to claims 1, 3-6, 8-14, 16-18, and 20-51 have been considered but are moot in view of the new ground(s) of rejection.

With regards to Lehmann, the Applicant states that Lehmann fails to suggest the use of growth environments within the crystal growing incubator. The Examiner disagrees. See col. 1, lines 62-66, of Lehmann. Therefore, Lehmann still applies as prior art for at least the above disclosure.

Conclusion


Any inquiry concerning this communication or earlier communications from the examiner should be directed to Chih-Cheng Glen Kao whose telephone number is (571) 272-2492. The examiner can normally be reached on M - F (9 am to 5 pm).

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



gk



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